

This invention relates to methods for increasing the dynamic range and accuracy of assays in which the presence, absence, activity or concentration of a target analyte is assayed by the emission or quenching of a light signal, or by a change (i.e., an evolution or loss) of a light signal in two or more time intervals. In preferred embodiments multiple digitized images are captured at varying times, and the images analyzed to identify captured images within the dynamic range of the assay. The invention further relates to apparatus capable of implementing such methods.